Cascading the Avocent Digital Access KVM Switch to a KVM Infrastructure

As a component within the Dell Modular Server Enclosure, the Avocent Digital Access KVM (keyboard, video, mouse) switch provides remote access capabilities to Dell™ PowerEdge™ 1855 and PowerEdge 1955 blade servers. Digital Access KVM switches can be cascaded to Dell external KVM devices, such as the Dell 2161DS-2 and 4161DS Remote Console Switches, and can be managed using the On-Screen Configuration and Activity Reporting (OSCAR®) interface.

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With Avocent Digital Access KVM (keyboard, video, mouse) switches, IT administrators can remotely monitor and control Dell PowerEdge 1855 and PowerEdge 1955 blade servers. The Digital Access KVM switch consolidates KVM connections and provides a single local terminal connection to the blade server chassis, known as the Dell Modular Server Enclosure. The Digital Access KVM switch has a 10/100 Mbps network connection that can be used to remotely connect to the individual server blades within the Dell Modular Server Enclosure to take advantage of virtual media and remote KVM features.

The Avocent Digital Access KVM can be cascaded to external remote console KVM switches, such as the Dell 2161DS-2 and 4161DS Remote Console Switches, or to analog console switches such as the Dell 180AS, Dell 2160AS, and other legacy KVM switches. The external KVM switch can then be connected to an enterprise's KVM infrastructure—interconnecting several servers and KVM switches over an enterprise-wide network and enabling administrators to manage multiple servers from a single console using Dell Remote Console Software (RCS).

Understanding the Avocent Digital Access KVM switch

The Avocent Digital Access KVM switch provides one RJ-45 network connector and a custom KVM dongle with two PS/2 ports and one video port (see Figure 1). The Dell Modular Server Enclosure can support an Avocent Digital Access KVM switch or an Avocent Analog KVM switch. In the analog switch, the RJ-45 connector is an Analog Console Interface (ACI) port that can be used to cascade to an external KVM switch. The RJ-45 network connector in the Digital Access KVM switch is not a direct console interface and therefore it cannot

Figure 1. Dell PS/2 KVM dongle

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be used for KVM cascading. Instead, the KVM dongle must be connected to a PS/2 server interface pod (SIP) to cascade the Digital Access KVM switch to an external KVM switch (analog or digital). On one end of the SIP are two PS/2 connectors and one video connector; on the other end is an RJ-45 tiering connector (see Figure 2). The RJ-45 connector on the SIP is an ACI port that can be connected to an external KVM switch using a standard Category 5 (Cat 5) cable, but it is not an Ethernet network port. The corresponding RJ-45 connector on an external KVM switch is called an Analog Rack Interface (ARI) port.

Figure 2. Dell PS/2 server interface pod

The Digital Access KVM switch supports two user interfaces. The network configuration, virtual media, and remote KVM settings can be configured from the Dell Remote Access Controller/Modular Chassis (DRAC/MC) user interface. The display interface for server selection is the On-Screen Configuration and Activity Reporting (OSCAR) menu, which is available in all Dell KVM switches. SIP module firmware can be updated through the OSCAR interface; Digital Access KVM firmware must be updated through the DRAC/MC interface.

Cascading to an external KVM switch

Dell external KVM switches such as the 2161DS-2 and 4161DS have ARI ports, which accept Cat 5 cabling from an ACI port. To cascade KVM switches, the KVM dongle from the Avocent Digital Access KVM switch should be connected to the SIP, and then the SIP's RJ-45 connector (ACI port) should be cabled to one of the external switch's ARI ports (see Figure 3). The Dell Modular Server Enclosure with the Digital Access KVM switch must be powered up before administrators can make the cascading connection to the external KVM switch.

The Digital Access KVM switch's local security settings such as the password and screen saver must be disabled before cascading the KVM switches. Administrators can disable these security settings from the local OSCAR menu by connecting a local keyboard and monitor to the Digital Access KVM dongle.

Dell KVM switches support only two levels of cascading; therefore, the Digital Access KVM switch can be tiered under only one switch. It cannot be connected to a port expansion module.

After setting up the cascading connection, administrators can use the external KVM switch's OSCAR menu to access the server blades within the Dell Modular Server Enclosure. Best practices recommend resetting the SIP module in order for the external KVM switch to replicate the Digital Access KVM switch's settings. The SIP can be reset from the OSCAR menu by selecting the following options in order: Commands, Display Versions, SIP-Number, Version, and Reset. After the reset, the SIP presents itself to the external KVM switch as a 10-port KVM switch.

If the external KVM switch is managed from a remote workstation using RCS, then the RCS database must be resynchronized with all of the connected KVM switches. The database resynchronization is initiated from RCS by selecting the Management Properties menu option and then clicking the Resync button in the Server category. To resynchronize multiple remote client workstations, administrators can save the resynchronized local database on the first workstation and then load it onto the other client workstations.

The Digital Access KVM switch consolidates KVM connections and provides a single local terminal connection to the blade server chassis, known as the Dell Modular Server Enclosure.

Connecting to external KVM switches from other vendors

The Avocent Digital Access KVM switch can be connected to non-Dell external KVM switches by connecting the KVM dongle directly to the PS/2 ports and video ports of the external KVM switch. In this type of configuration, known as non-seamless tiering, administrators first select the Digital Access KVM port from the menu of the external KVM switch's on-screen display menu, and then press the Print Screen key to access the OSCAR menu for the Digital Access KVM switch. Non-seamless tiering

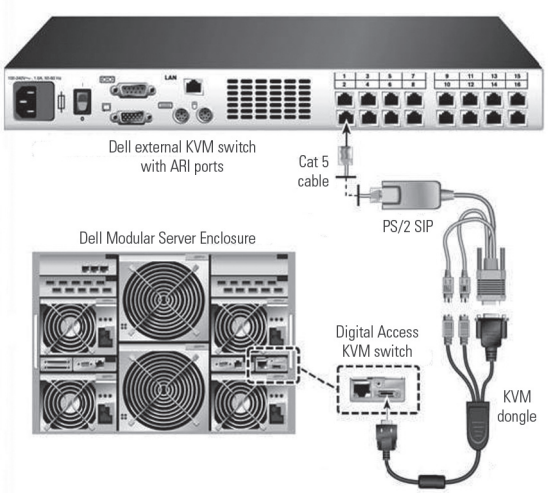

Figure 3. Cascading a Digital Access KVM switch to a Dell external KVM switch through Cat 5 cabling

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is not supported by Dell external KVM switches.

Configuring OSCAR settings

The OSCAR interface for the Avocent Digital Access KVM switch is a subset of the external KVM switch's user interface. The OSCAR interface displays the list of servers sorted by name, electronic identifier (EID), or port number. The EID option is available only on external switches. Once switches are cascaded, the external switch's OSCAR menu becomes the user interface for the Digital Access KVM switch. The server blades in the Dell Modular Server Enclosure are labeled in the external KVM switch's OSCAR menu as *x*-01 to *x*-10, where *x* is the port number to which the Digital Access KVM switch is connected.

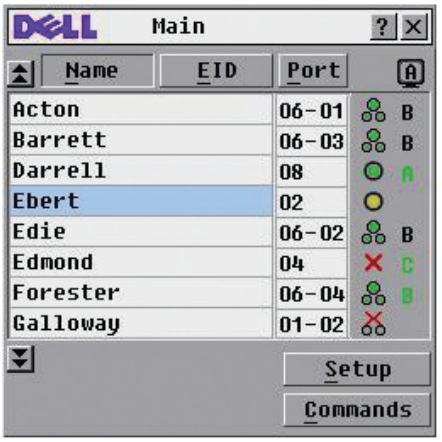

Figure 4. OSCAR interface showing SIP online status

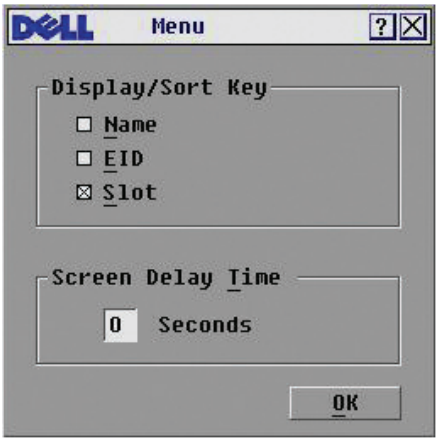

Figure 5. OSCAR interface to set screen delay

A cascaded KVM connection handles only server selection logic and does not share custom settings from a KVM switch in a lower tier. Settings in the Digital Access KVM switch such as custom server names, language, security settings, and so forth are not propagated to the external KVM switch. The Digital Access KVM switch does not provide a language selection option because the firmware image differs for each supported language.

Avocent Digital Access KVM switches give server administrators the convenience of remotely monitoring and controlling Dell PowerEdge server blades within a Dell Modular Server Enclosure.

Channel status symbols are located to the right of the port number in the OSCAR interface (see Figure 4). A green selection mark indicates that the SIP is online, a yellow mark indicates that the SIP is updating, and a red cross mark indicates that the SIP is offline. When the SIP is connected to a switch such as the Digital Access KVM switch, the channel status symbol is a combination of three circles. If a user is connected to the channel, a letter is displayed to the right of the channel status indicating which user is connected.

Dell KVM switches allow server selection changes without launching the OSCAR interface—a feature known as soft-switching. To use soft-switching, administrators can select the Setup button on the OSCAR interface. Then, on the Menu page, they can select "Slot" for the Display/Sort Key setting and set the Screen Delay Time to be one or more seconds (see Figure 5). The Screen Delay Time setting is ignored if the password option is enabled in the external KVM switch.

Enabling remote access capabilities with Digital Access KVM switches

Avocent Digital Access KVM switches give server administrators the convenience of remotely monitoring and controlling Dell PowerEdge server blades within a Dell Modular Server Enclosure. By cascading a Digital Access KVM switch to external KVM switches and connecting it to the overall KVM infrastructure, administrators can interconnect multiple servers and KVM switches across an enterprise network. Using Dell Remote Console Software and OSCAR, administrators can manage these servers efficiently from a single console.

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